

Trend Study 21-18-03

Study site name: Teeples Ridge.

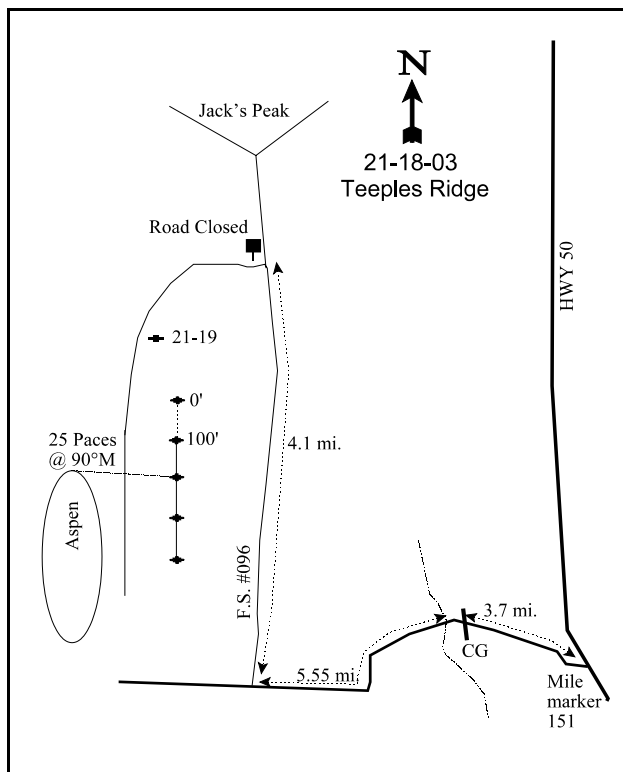
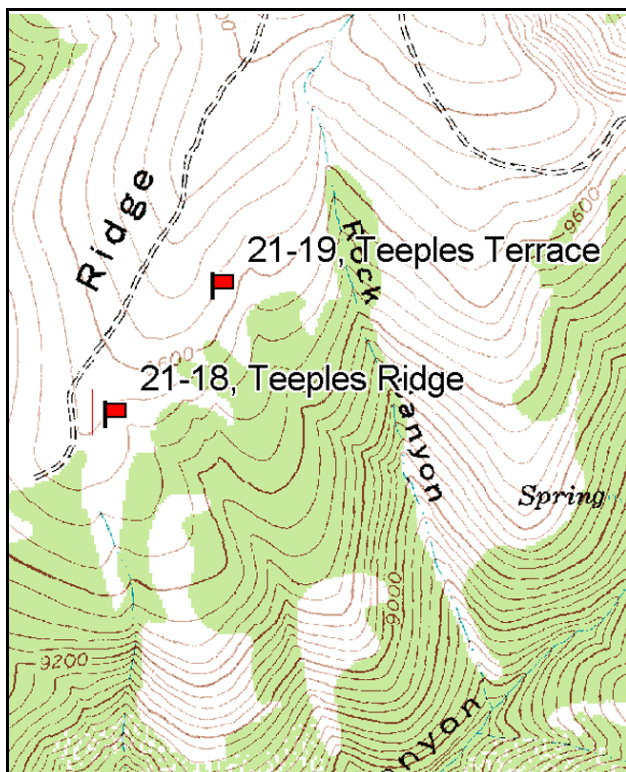
Vegetation type: Perennial grass/forb.

Compass bearing: frequency baseline 170 degrees magnetic.

Frequency belt placement: line 1 (11 & 95ft), line 2 (34ft), line 3 (59ft), line 4 (71ft). No rebar.

LOCATION DESCRIPTION

From Highway 50 at mile marker 151, drive west 3.7 miles to a cattlegaurd. Go another 0.75 miles across a stream to a gate. Go through the gate and drive 5.55 miles past the weather gauging station to a right turn. Turn right onto road # 096 and go 4.1 miles to a "road closed" sign on the left, just before Jack's Peak. Walk down the old road on the left (which is basically a trail now) for about 0.75 miles to the edge of an aspen clone and a clearing on the left. The study is in the clearing. From the north end of the aspen clone walk 25 paces at 90° M to the 200-foot stake. The 0-foot stake is 200 feet north.



Map name: Mount Catherine

Diagrammatic Sketch

Township 21S, Range 3W, Section 13

GPS: NAD 27, UTM 12S 4315093 N, 400637 E

DISCUSSION

Teeple Ridge - Trend Study No. 21-18

This study was established in 1997 to monitor cattle and elk grazing competition about one-half mile south of Jack's Peak. The site samples a dry meadow type bordered by aspen which provides excellent escape cover for deer and elk. Slope varies from 8% to 15% with a south-southeast aspect. Elevation is approximately 9,500 feet. This area is used by deer, elk, and cattle during the summer. Cattle were grazing on the area when the study was established (8/21/97). Pellet group transect data estimated 61 elk and 50 cow use days/acre (151 edu/ha and 124 cdu/ha) in 1997. Data from 2003 estimated 18 elk (45 edu/ha) and 23 cow days use/acre (57 cdu/ha). Deer use was estimated at only 2 days use/acre (5 ddu/ha) in both 1997 and 2003. Aspen stands near the site were mostly mature highlined trees with little or no reproduction evident.

Soils on the site are deep and rock free with an effective rooting depth estimated at nearly 17 inches. Soil texture is a clay loam with a slightly acidic pH (6.4). Soil organic matter is moderately high at 3.8%. There is a considerable amount of bare soil estimated at nearly 40% in 1997 and 2003. Herbaceous vegetation and litter cover are moderate. Although not severe, erosion is evident from gullies and rills throughout the site. Soils were rated as slightly eroding from a condition class assessment in 2003.

Like Pioneer Peak, this site is dominated by grasses and forbs. Sagebrush is found to the north and aspen clones border the site to the east and west. Due to the apparent deep, rock free soil and lack of shrubs, this site also probably once supported a tall forb community. The area was seeded as part of the same watershed protection project that was done at Pioneer Peak. Although browse is not an important aspect of this summer range, a small number of mountain big sagebrush were encountered near the start of the baseline.

The herbaceous understory is relatively abundant with 30 species sampled in 2003. Total herbaceous cover was 31% in 1997 and 34% in 2003. This kind of a site should be producing at least 50% vegetative cover, and it is far below its potential. Two seeded grasses, smooth brome and intermediate wheatgrass, are the most common grass species providing 97% of the grass cover in both readings. Both species had increased nested frequency values in 2003 and showed light to moderate use. The most abundant forbs are annuals and weedy increasers including western yarrow, larkspur, and hoary aster. Tuber starwort was very abundant in 1997, but less so in 2003. The dominance of weeds and increasers suggests disturbance caused by heavy grazing. Bluebell, a preferred perennial forb is present on the site in low numbers and was heavily utilized by grasshoppers in 2003.

1997 APPARENT TREND ASSESSMENT

The soil trend appears stable although there is a considerable amount of bare ground. Erosion is not severe due to the lack of slope. Browse is not an important aspect of this summer range and there are only a few sagebrush and low rabbitbrush along the beginning of the baseline. The herbaceous understory is fairly abundant but the composition is poor, especially for forbs. The grass component is dominated by smooth brome and intermediate wheatgrass which account for 97% of the grass cover. Forb composition is dominated by increasers and poisonous species including western yarrow, larkspur, hoary aster, and tuber starwort. These species occur at high densities and account for 78% of the forb cover. Future herbaceous trends will depend on changes in nested frequency for these increaser species.

2003 TREND ASSESSMENT

Trend for soil is stable. Erosion is evident, but not severe. Ground cover parameters (vegetation, litter, and bare soil) are stable. As with the Pioneer Peak study, browse is insignificant on the site and there is no trend. Trend for the herbaceous understory is stable overall. Perennial grasses increased in sum of nested frequency

while forbs declined. Smooth brome and intermediate wheatgrass dominate the grasses. Both species have significantly increased in nested frequency since 1997. The forb component remains dominated by weeds and increasers, and is far below it's productivity potential. Perennial forbs decreased in sum of nested frequency due mostly to the significant decline in tuber starwort. Overall, sum of nested frequency of perennial grasses and forbs remained similar between readings.

TREND ASSESSMENT

soil - stable (3)

browse - no trend (n/a)

herbaceous understory - stable (3)

HERBACEOUS TRENDS --

Management unit 21 , Study no: 18

T y p e	Species	Nested Frequency		Average Cover %	
		'97	'03	'97	'03
G	Agropyron intermedium	_a 166	_b 199	4.40	7.61
G	Agropyron trachycaulum	2	-	.00	-
G	Bromus carinatus	_a 1	_b 16	.01	.07
G	Bromus inermis	_a 235	_b 277	11.68	12.75
G	Dactylis glomerata	20	6	.27	.18
G	Melica bulbosa	-	4	-	.06
G	Poa pratensis	2	8	.00	.03
G	Stipa columbiana	-	8	-	.07
G	Stipa lettermani	11	18	.13	.27
Total for Annual Grasses		0	0	0	0
Total for Perennial Grasses		437	536	16.52	21.06
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F	Achillea millefolium	37	29	1.10	.50
F	Agoseris glauca	_b 56	_a 18	.49	.13
F	Arabis spp.	12	5	.05	.01
F	Artemisia dracunculul	4	-	.05	-
F	Aster chilensis	2	8	.00	.07
F	Astragalus spp.	-	3	-	.00
F	Cirsium spp.	1	2	.03	.00
F	Collomia linearis (a)	_b 52	_a -	.14	-
F	Cymopterus spp.	4	-	.01	-
F	Delphinium occidentale	_b 67	_a 42	5.99	4.09
F	Epilobium paniculatum (a)	8	-	.06	-
F	Erigeron eatonii	-	7	-	.06
F	Erigeron flagellaris	-	15	-	.33

T y p e	Species	Nested Frequency		Average Cover %	
		'97	'03	'97	'03
F	Machaeranthera canescens	166	245	2.81	5.03
F	Mertensia spp.	64	60	.80	1.19
F	Polygonum douglasii (a)	139	80	.56	.45
F	Rumex crispus	3	-	.18	-
F	Stellaria jamesiana	177	17	1.00	.06
F	Taraxacum officinale	25	10	.17	.39
F	Vicia americana	32	-	.15	-
F	Viguiera multiflora	30	40	.41	.45
Total for Annual Forbs		199	80	0.76	0.45
Total for Perennial Forbs		680	501	13.27	12.35
Total for Forbs		879	581	14.03	12.81

Values with different subscript letters are significantly different at alpha = 0.10

BROWSE TRENDS --

Management unit 21 , Study no: 18

T y p e	Species	Strip Frequency		Average Cover %	
		'97	'03	'97	'03
B	Artemisia tridentata vaseyana	5	6	.03	.18
Total for Browse		5	6	0.03	0.18

BASIC COVER --

Management unit 21 , Study no: 18

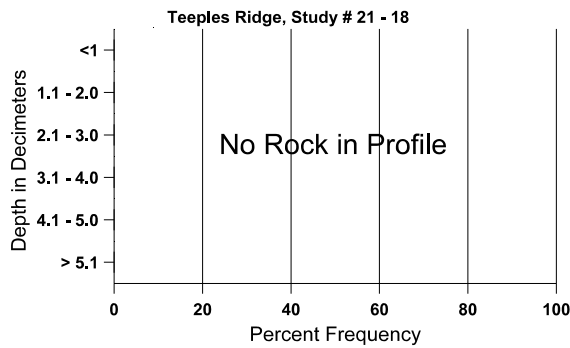
Cover Type	Average Cover %	
	'97	'03
Vegetation	34.34	33.40
Rock	.08	.55
Pavement	.69	.04
Litter	31.69	34.98
Bare Ground	38.18	39.83

SOIL ANALYSIS DATA --

Management unit 21, Study no: 18, Study Name: Teeples Ridge

Effective rooting depth (in)	Temp °F (depth)	PH	%sand	%silt	%clay	%0M	PPM P	PPM K	dS/m
16.9	47.6 (17.6)	6.4	32.7	28.7	38.6	3.8	18.2	252.8	0.6

Stoniness Index



PELLET GROUP DATA --

Management unit 21 , Study no: 18

Type	Quadrat Frequency		Days use per acre (ha)	
	'97	'03	'97	'03
Elk	9	10	61 (151)	18 (45)
Deer	2	2	2 (5)	1 (3)
Cattle	11	16	50 (124)	23 (57)

BROWSE CHARACTERISTICS --

Management unit 21 , Study no: 18

		Age class distribution (plants per acre)					Utilization				
Year	Plants per Acre (excluding seedlings)	Seedling	Young	Mature	Decadent	Dead	% moderate	% heavy	% decadent	% poor vigor	Average Height Crown (in)
Artemisia tridentata vaseyana											
97	100	-	60	40	-	20	0	0	-	0	10/9
03	120	-	20	100	-	40	0	0	-	0	14/13
Chrysothamnus viscidiflorus lanceolatus											
97	0	-	-	-	-	-	0	0	-	0	9/7
03	0	-	-	-	-	-	0	0	-	0	8/13